WHAT IS CLAIMED IS:

1. A method for forming a shallow trench in a deep trench structure, said deep trench structure including at least a substrate, a pad oxide layer and a pad nitride layer formed on said substrate, said substrate having the pad oxide layer and pad nitride layer formed thereon having a deep trench formed therein, said deep trench being filled with at least poly-silicon, said method comprising steps of:

forming a liner layer on said deep trench structure;

forming an amorphous silicon layer on said liner layer;

implanting selected ions into partial regions of said amorphous silicon layer;

oxidizing said amorphous silicon layer to form an oxide layer, the portion of the oxide layer formed from the region of the amorphous silicon layer implanted with said selected ions having a thickness different from that of the portion of the oxide layer formed from the region of the amorphous silicon layer not implanted with said selected ions;

partially removing said oxide layer to remove the thin portion of the oxide layer and partially remove the thick portion of the oxide layer to leave a residual layer;

removing the portion of the liner layer not covered by said oxide layer to expose the poly-silicon; and

etching the exposed poly-silicon to form a shallow trench.

2. The method as claimed in Claim 1 further comprising a step of removing the residual oxide layer and liner layer after the shallow trench is formed.

3. The method as claimed in Claim 1, wherein said ions are selected so that the portion of the oxide layer formed from the region of the amorphous silicon layer implanted with said selected ions has a thickness thinner than that of the portion of the oxide layer formed from the region of the amorphous silicon layer not implanted with said selected ions.

4. The method as claimed in Claim 3, wherein the selected ions are N_2^+ ions.

5. The method as claimed in Claim 1, wherein said ions are implanted by tilt implantation.